4I66 MANUAL

PC104-PLUS 100BT MAC-SWITCH

V1.3

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GENERAL

DESCRIPTION

The 4I66 is a stackable PC/104-plus card that combines a 100BaseT Ethernet MAC with a 4 port switch. The 4I66 makes it easy to connect multiple embedded system cards without the awkward power or mechanical problems with consumer type Ethernet switches.

The 4 Ethernet ports support autonegotiation allowing connections with half and full duplex, 10 and 100 BaseT devices plus Auto-MDIX, eliminating the need for crossover cables.

The Ethernet MAC is a National Semiconductor DP83816 which has drivers available for most operating systems. The switch has sufficient bandwidth to support full duplex wire speed connections on all ports.

HARDWARE CONFIGURATION

GENERAL

Hardware setup jumper positions assume that the 4I66 card is oriented in an upright position, that is, with the PC/104 connectors towards the person doing the configuration, and the on card writing right-side-up.

PC104-PLUS SLOT NUMBER

The 4I66 card must be assigned a slot number before use. In desktop PCI systems, the slot number is determined by the physical slot that the PCI card is inserted into. In PC104-PLUS systems, all signals on the bus are the same for each card, so a method is needed to differentiate each card. This is done with the slot number jumpers on the 4I66 card. 2 jumpers. W2 and W3 determine the 4I66 slot assignment. The following table shown the jumper settings:

W2	W3	SLOT	IRQ	REQ/GNT	NOTES
DOWN	DOWN	0	A	0	DEFAULT
DOWN	UP	1	B	1	
UP	DOWN	2	C	2	
UP	UP	3	D	2	SHARES SL2 REQ/GNT

MDIX ENABLE/DISABLE

The 4 Ethernet ports of the 4I66 support Auto MDI-X. When Auto MDI-X is enabled, each Ethernet port automatically detects whether a crossover connection is required and switches the ports transmit and receive pairs as needed. Sometimes this auto-switching can interfere with proper operation of other connected hubs or switches so it can be disabled. W4 controls the MDIX feature. When W4 is in the right hand position (default), Auto MDI-X is enabled. When W4 is in the left hand position, Auto MDI-X is disabled.

BOOT EPROM

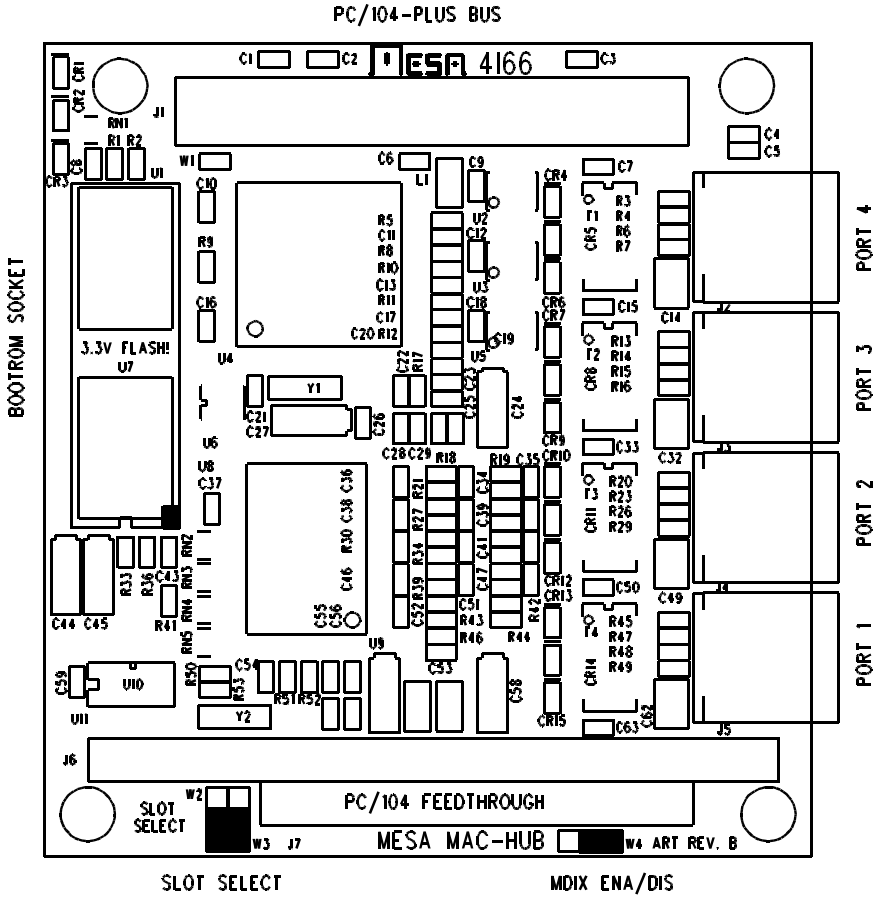
The 4I66 can accommodate a boot EPROM or Flash EEPROM. Socket U8 is provided for the EPROM or flash EEPROM. The 4I66 will only support 3.3V ,32 pin EPROM and Flash EEPROMs.

ETHERNET ADDRESS

The hexadecimal MAC address is printed on a label on the front edge of the PC/104 connector of the 4I66 card.

CONNECTORS

CONNECTOR LOCATIONS AND DEFAULT JUMPER POSITIONS



CONNECTORS

ETHERNET CONNECTOR

J2 through J5 are the RJ-45 Ethernet connectors. Note that the Auto MDI-X feature can swap the transmit and receive pairs if a reversed connection is detected. Standard pin-out is as follows:

PIN	FUNCTION
1	XMIT+
2	XMIT-
3	RCV+
6	RCV-

LED STATUS INDICATORS

Status LEDS are provided behind each RJ45 connector. LED function is as follows:

GREEN	LINK OK/ACTIVITY
YELLOW	FULL DUPLEX/COLLISION
RED	HIGH SPEED (100BaseT)

OPERATION

SWITCH

The 4I66 is basically an Ethernet interface and a 5 port switch on a single card. The Ethernet MAC connects on one of the 5 switch ports, leaving 4 free for the user. Since the Ethernet MAC has a local Ethernet interface to its switch port, system software will only see a standard Ethernet interface, so normal DP83816 drivers can be used.

DRIVERS

The Distribution disk supplied with the 4I66 has drivers for Windows 9X,NT,2K,CE,ME, DOS,Linux ,Vxworks and Netware. In addition the DP83815 chip used on the 4I66 is supported by FreeBSD, NetBSD, OpenBSD, and QNX.

SPECIFICATIONS

	MIN	MAX
POWER SUPPLY	4.5V	5.5V
POWER CONSUMPTION:		
ALL CHANNELS ACTIVE 100BT	----	600 mA
ALL CHANNELS ACTIVE 10BT	----	800 mA
IDLE	----	450 mA
OPERATING TEMP.	0^{o}C	+70^{o}C
OPERATING TEMP. (-I version)	-40^{o}C	+85^{o}C
OPERATION HUMIDITY	0	95% NON-CONDENSING